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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,876	09/26/2001	Michael Goldstein	42390.P12077	1455

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EXAMINER

TRAN, BINH X

ART UNIT PAPER NUMBER

1765

DATE MAILED: 08/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/964,876

Applicant(s)

GOLDSTEIN, MICHAEL

Examiner

Binh X Tran

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 14 and 15 is/are rejected.
- 7) ☒ Claim(s) 10-13 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>09-26-2001</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In line 6 of claim 1, "high quality surface finish" is subjective and indefinite.

Claims 2-7 are rejected under 35 U.S.C. 112, second paragraph, because they directly or indirectly depend on indefinite claim 1.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Cardinale (US 6,368,942).

Respect to claim 1, Cardinale discloses a method for making a semiconductor device comprising the steps of:

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forming a crystalline layer (11) on a first layer (10), which has a low coefficient of thermal expansion (See Fig 1B; Note: layer 10 is the first ultra low expansion);

removing part of the crystalline layer to form on the first layer a second layer having a polished surface (Fig 1C, col. 3 lines 25-30).

Respect to claims 2-3, Cardinale discloses the first layer (10) is a low coefficient of thermal expansion comprises ceramic glass, and the crystalline layer (11) comprises silicon (col. 3 lines 1-15, lines 60-67).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 8-9, 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cardinale in view of Levinson et al. (US 6,159,643).

Respect to claim 8, Cardinale also teaches the step of converting part of the crystalline layer (10) into a sacrificial layer (14) and removing the sacrificial layer (See fig 1d-1e). Claim 8 differs from Cardinale by further disclosing the step of forming a multi-layer coating on the remaining portion of the crystalline layer. In a method for making a mirror for lithography, Levinson teaches to form multi-layer reflective coating layer (206) on a silicon layer (See Fig 3, col. 3 lines 53-63). It would have been obvious to one having ordinary skill in the art, at the time of invention, to modify Cardinale in

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view of Levinson by forming a multi-layer coating because it introduces a phase delay of one or more wavelengths so that the composite reflection is a single phase.

Respect to claim 9, Cardinale discloses the low CTE layer (10) is ceramic glass and the crystalline layer (11) comprises silicon (col. 3 lines 1-15, lines 60-67).

Respect to claim 14, Cardinale also teaches the step of converting part of the crystalline layer (10) into a sacrificial silicon dioxide layer (14) and removing the sacrificial silicon dioxide layer (fig 1d-1e). Claim 14 differs from Cardinale by further disclosing the step of forming a multi-layer coating on the remaining portion of the crystalline layer comprises alternating layers of molybdenum and silicon. In a method for making a mirror for lithography, Levinson teaches to form multi-layer reflective coating layer (206) comprises alternating layers of molybdenum and silicon (See Fig 3, col. 3 lines 53-63). It would have been obvious to one having ordinary skill in the art, at the time of invention, to modify Cardinale in view of Levinson by forming a multi-layer coating comprises alternating layers of molybdenum and silicon because it introduces a phase delay of one or more wavelengths so that the composite reflection is a single phase.

Respect to claim 15, Cardinale discloses the low CTE layer (10) is ceramic glass (col. 3 lines 1-15, lines 60-67).

Allowable Subject Matter

7. Claims 4-7 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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8. Claims 10-13, 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: The cited prior arts fail to disclose the step of polishing and cleaning the CTE layer prior to forming the crystalline layer comprise silicon on the low CTE layer in conjunction with the step forming sacrificial silicon dioxide and all other limitations in the claim.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Binh X Tran whose telephone number is (571) 272-1469. The examiner can normally be reached on Monday-Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Binh X. Tran

NADINE C. HORTON
SUPERVISORY PATENT EXAMINER

